

11.—MARINE COPEPODS FROM WESTERN AUSTRALIA
SERIES II.

TWO PELAGIC COPEPODS FROM COCKBURN SOUND.

BY W. S. FAIRBRIDGE, B.Sc.

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The species described were found in some plankton hauls made a few miles south of Fremantle in Cockburn Sound, about midway between Garden Island and the mainland. The maximum depth of water in the area is 20 metres.

Order CALANOIDA.

Family CENTROPAGIDAE Sars, 1902.

Genus CENTROPAGES Kroyer, 1849.

A large number of new species have been described since this genus was summarised by Giesbrecht and Schmeil (1898). Unfortunately, the author has been unable to study the descriptions of *C. longicornis* (Mori, 1932) and *C. ponticus* (Karawiew, 1895).

Centropages australiensis sp. nov.

Occurrence.—Regularly found, sometimes forming a considerable proportion of the catch ; males and females in about equal numbers.

Female.—Length, 1.4–1.6 mm.

The mouth parts agree with those figured for *C. typicus* (Kroyer, 1848) by Giesbrecht (1892, *Fauna und Flora des Golfes von Neapel*) and Sars (1900, *An Account of the Crustacea of Norway*).

The fifth leg differs from *C. typicus* in the endopod, the second segment being as long or longer than the terminal and distinctly narrowed at the base, and the basal segment broadened distally. The second abdominal segment is very long compared with the genital and anal segments ; the proportions of the abdominal segments are 23 : 34 : 10 : 18. The genital segment bears only two spines, one dorso-lateral and one ventro-lateral, both on the left side, the latter being very small ; the second segment bears a hooked knob on its right side. The fifth thoracic segment is only slightly asymmetrical, the left side being the larger.

Male.—Length, 1.4–1.5 mm.

The first antenna has a distinct spine on segments 15 and 16 (Sars does not figure a spine on segment 15 for *C. typicus*, and Giesbrecht indicates a minute one) ; there is an incomplete division between segments 22 and 23 (as indicated by Giesbrecht for *C. typicus*, but Sars shows a complete division). The other mouth parts agree with those for *C. typicus*.

The swimming legs appear to be typical ; Giesbrecht (1898) says of *C. typicus* that the right exopods of legs 3 and 4 bear a “vergrösserten Aussenranddorn” on the second segment ; this is noticeable in the present species. The fifth leg differs markedly from *C. typicus* in that the basal portion of the chela is much narrower, resembling the type found in *C. hamatus* (Lilljeborg, 1853) ; and the proximal segment of the chela extends beyond the “thumb” and is but slightly hooked at the tip. The abdomen agrees with *C. typicus*. The spines of the last thoracic segment are asymmetrical, the right being much smaller than the left.

The specimens taken in Cockburn Sound appear to be identical with those found off New South Wales and figured by Dakin and Colefax (1940) as a variety of *C. kroyeri* (Giesbreeht, 1892): the only difference between these specimens and the rather few figures given for the Sydney variety, being the slightly larger basal portion of the chela of the New South Wales specimens. While the male fifth leg of this species resembles *C. kroyeri* in some ways more nearly than *C. typicus*, the female abdomen and last thoracic segment are so entirely different from *C. kroyeri*, that it would seem best to regard it on these features as more nearly related to *C. typicus*. It resembles *C. typicus* rather than *C. kroyeri* in a number of other points: the spines on the proximal segments of the first antenna; the outer spine of the second exopod segments of the third legs; and the length of the inner spine on the second segment of the female fifth leg relative to that segment.

On comparison with some drawings made by Dr. A. G. Nicholls, this species appears to be identical also with a Centropagid found by him in 1939 at Crawley Bay in the Swan River. Crawley Bay is well up in the Swan Inlet, and the salinity would be very low in winter: this form is therefore either originally or secondarily estuarine. Dakin and Colefax give no details as to where their specimens were found, but all or most of their collecting was done in the open sea. Since therefore, this variety is constant from New South Wales to Fremantle, in the open sea and under estuarine conditions, it seems best to give it specific rank.

It may be most easily recognised by the female abdomen and the form of the chela of the male fifth leg.

Order HARPACTICOIDA.

Family TISBIDAE Sars. 1904.

Genus MACHAIROPUS Brady, 1883.

Lang (1936) has revised this genus. Since then two new species have been described: *M. antarcticus* (Lang, 1936b) and *M. intermedius* (Nicholls, 1941).

Machairopus cockburni sp. nov.

Occurrence.—8 females (3 ovigerous) and 10 immature specimens, in a horizontal haul at 10 m. depth; 22-7-41.

Female.—Length, 0.94-1.15 mm.

First antennae 9-segmented, tapering gradually, the proportional lengths of the segments being 18:24:32:18:4:4:3:10:14. Exopod of the second antennae 4-segmented; the endopod bearing 9 terminal setae, 4 of which are geniculate. Second basal segment of the mandible bears a single, long, thick, plumose seta; endopod and exopod typical. Exopod of maxilla bears 2 long plumose setae; the endopod with 3 stiff serrate setae; inner lobe I with 8 setae, and inner lobes II and III each with 2 setae. First maxilliped with an inner marginal lobe bearing 2 stout and 1 fine plumose setae, and a slender distal lobe bearing 2 setae. Second maxilliped with 1 stout claw apically and 3 finer setae.

Proportional lengths of the segments of the endopod of the first leg 10:6:3, each segment with a plumose inner marginal seta; outer marginal spine of the second segment of the exopod in the middle of the margin, and the inner marginal bulge pronounced. Seta formula:—

			Endopod.	Exopod.
p2	...	...	1. 2. 230	1. 1. 223
p3	...	...	1. 2. 330	1. 1. 323
p4	...	...	1. 2. 230	1. 1. 323

Distal segment of the fifth leg with almost parallel margins, and more than twice as long as wide; it bears 3 terminal setae, the middle one longer than the other 2; 2 external lateral setae, each shorter than the terminals, the proximal being within the distal half of the segment. Proportional lengths of the abdominal segments and caudal rami 73:37:28:11:17. Genital segment deeply cleft; caudal rami divergent, slightly wider at the base than long; the outer marginal seta barely within the distal half; 4 terminal and 1 small dorsal setae.

Male.—Unknown.

This species most nearly resembles *M. hippolytes* (Kroyer, 1863), a northern cold-water species (Greenland and Norway), and *M. australis* (Scott, 1912), a southern cold-water species (South Orkneys and South Georgia). It differs from *M. hippolytes* in (a) the relative lengths of the segments of the first antennae, (b) the setae of the second basal segment of the mandible, (c) the setae of the inner lobe of the first maxilliped, (d) the relative lengths of the 2 proximal segments of the endopod of the first legs, (e) the setation of the swimming legs and, (f) the shape and setation of the fifth legs. In addition to the points (a), (b), and (e) above, it differs from *M. australis* mostly in the presence of a distal lobe on the first maxilliped, the shape of the fifth legs, and the length of the caudal rami to the anal segment (in *M. australis* "about as long as the last abdominal segment," Scott).

It may be recognised by the almost parallel margins of the fifth legs, the proportions of the endopod segments of the first legs, and the single large seta on the second basal joint of the mandible.

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